



DETERMINANT FACTORS OF DENTAL AND ORAL SELF-CARE FOR ADOLESCENTS IN THE COASTAL AREA OF CILACAP CITY

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ABSTRACT

Background: The prevalence of oral health problems in Indonesia is 25.9%. The incidence of oral and dental diseases in Central Java in 2019 was recorded at 126,225 cases and 39,759 of them occurred in Cilacap District. Based on data taken from the Kampung Laut Community Health Center, there were a total of 164 confirmed cases of oral health in 2022, dental and oral diseases that are often found in the community include caries and periodontal disease. Oral health care efforts are the main preventive measures to prevent oral disorders in order to avoid oral diseases, which can be carried out by each individual through self-care, such as brushing teeth, using dental floss, and using mouthwash. The purpose of this study was to determine the determinant factors related to dental and oral self-care which include knowledge, behavior, attitude, age, gender, parents' occupation, social history, and history of toothache with oral self-care in adolescents at Kampung Laut 1 Senior High School.

Method: The results of the analysis of the relationship between factors of knowledge ($p = 0.037$), behavior ($p = 0.018$), attitude ($p = 0.046$), age ($p = 0.037$), gender ($p = 0.025$), parents' occupation ($p = 0.049$), social history ($p = 0.037$) and history of toothache ($p = 0.018$) on dental and oral self-care in adolescents where the p value of each variable is <0.05 which means it is significant.

Result: There is a relationship between knowledge, behavior, attitudes, age, gender, parents' occupation, social history and history of toothache on dental and oral self-care in adolescents.

BACKGROUND

Dental and oral health is still a problem in society where the prevalence of oral health problems reaches 76%.¹ This problem has also been reported in various countries with varying incidence rates, including in Shandong, China the incidence of dental caries reached 39.9% where women (46.7%) were higher than men (33.1%).² The prevalence of caries in Accra, Ghana is 13.3% where men are higher (14%) than women (13%).³ The prevalence of dental caries in Brazil is 53.1% where men are 52.9% and women are 49.1%.⁴ The incidence of caries also differed by age group, where a study in Uganda reported a prevalence of caries at the age of 11-15 years of 55.2% and 16-19 years of 74.9%.⁵

China also reported that the prevalence of caries at the age of 11-14 years was 53.1% in males and 51.4% in females.⁶

The prevalence of dental and oral health problems in Indonesia is 25.9%, while Central Java ranks third.⁷ Types of dental and oral diseases in the 15-24 years age group include broken teeth, cavities or pain by 38.1%, swollen gums (abscesses) 14.6%, gums that bleed easily 19%, and recurrent mouth sores 9.6%. As many as 12.9% of the population took treatment at the dentist and 36.2% took care independently.⁸ The incidence of dental and oral disease in Central Java in 2019 recorded 126,225 cases⁸ and 39,759 of them occurred in Cilacap Regency.⁷

Several types of oral disease, especially dental caries, developmental defects of tooth tissue and periodontal problems have complex etiologies and are interrelated with common risk factors, mainly based on behavior.⁹ Apart from dental caries, periodontal disease is also a dental and oral health problem. This disease is caused by smoking, use of certain drugs, genetic susceptibility, and systemic disease.¹⁰ One of the risk factors for dental caries is the habit/behavior carried out by adolescents, especially brushing their teeth every day which was found by a study in Central Africa showing risk factors for dental caries, including tooth brushing behavior, sweet food eating behavior, dental status assessment, and dental knowledge about the importance of oral health in quality of life.¹¹

Dental and oral health care efforts are the main preventive measures to prevent oral disorders in order to avoid oral diseases, which can be carried out by each individual through self-care, for example, brushing teeth, using dental floss (dental floss), and the use of mouthwash. Research in Iran reported that 6.7% of students never brushed their teeth and only 21% of students brushed their teeth twice or more a day, 62.8% did not use dental floss (dental floss). The use of mouthwash was found in only 6.2% of students, and only 23.6% who visited the dentist.¹² Research in Sao Tome reported that 64.15% of respondents agreed that brushing their teeth could prevent dental caries.¹¹ This is because oral hygiene plays an important role in maintaining and maintaining the health of the teeth and surrounding tissues.¹³

Kampung Laut is one of the sub-districts in Cilacap Regency which is located on the edge of the Segara Anakan Lagoon and border West Java. Kampung Laut sub-district is the area with the least population, namely 15,724 people.¹⁴ Kampung Laut Health Center is the only health center in Kampung Laut District which covers 4 villages in Kampung Laut District. Based on data taken from the Kampung Laut Health Center, a total of 164 confirmed cases of dental and oral health were recorded in 2022, including 31 cases of caries and 30 cases of periodontal disease which are the most common in the community. According to data from the public health center, there has never been a dental and oral health program at the school.

Based on this background, researchers are interested in conducting further research on dental and oral self-care in adolescents at Kampung Laut 1 Senior High School.

METHOD

This research is a type of observational analytic research that will describe dental and oral care independently of students at Kampung Laut 1 Senior High School. The research design used is Cross Sectional to analyze the relationship between the independent variable and the dependent variable which is done only once at the same time using a questionnaire. Research permits and ethically sound certificates from the health research ethics committee (KEPK) Faculty of Public Health, University of Muhammadiyah Semarang and this research has passed the ethical test from Institute of Health Research Ethics Committee with No.017/KEPK-FKM/UNIMUS/2023.

The population of this study was Kampung Laut 1 Senior High School, totaling 176 students. the sample size was determined using the slovin formula, so that a sample of 82 was obtained. The sampling technique used in this study is simple random sampling, namely the sampling process is carried out by giving each member of the population the same opportunity to become a member of the sample.

The inclusion criteria used in this study included students from Kampung Laut 1 Senior High School, able to communicate well, and willing to be respondents. The exclusion criteria in this study were teenagers who don't attend school in Kampung Laut 1 Senior High School. This research was conducted at Kampung Laut 1 Senior High School in September 2022 - June 2023.

This study was conducted by obtaining a research permit (ethical clearance) from the research ethics commission, then obtaining a permit from SMA Negeri 1 Kampung Laut, if permission has been obtained, preparations for data collection will be made. The tools and materials needed are questionnaires that have been tested for validity and reliability. the questionnaire contains the identity of the respondent and questions about oral health.

Filling in the questionnaire was carried out simultaneously by researchers who were assisted by teachers and computer laboratory operators at Kampung Laut 1 Senior High School, totaling 2 people. The research subjects were asked to fill out the questionnaire independently via the Google Form link which can be accessed via the school's computer. After the results of the questionnaire have been obtained, then the researcher performs data processing. The next stage is the final report and research results. Data analysis used univariate and bivariate analysis. Univariate analysis was performed on each variable to describe or describe independent and dependent variable data in the form of frequency tables. Bivariate analysis was conducted to see the relationship between the dependent and independent variables. In this study the test used is test Chi-Square.

RESULTS

Table 1. Relationship of Age to Dental and Oral Self-Care

Age	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
15-17 years	22 (52.4%)	13 (30.9%)	7 (16.7%)	42
18-20 years	31 (77.5%)	4 (10%)	5 (12.5%)	40
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 1, the majority of respondents were aged 15-17 years with a good self-care percentage of 52.4%. For respondents aged 18-20 years, the percentage of good self-care was 77.5%.

Table 2. Relationship of Gender to Dental and Oral Self-Care

Gender	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Man	20 (50%)	12 (30%)	8 (20%)	40
Woman	33 (78.6%)	5 (11.9%)	4 (9.5%)	42
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 2, the majority of respondents were female with a good percentage of self-care at 78.6%, while men were at 50%.

Table 3. Relationship of Parents' Occupation to Dental and Oral Self-Care

Parent's Occupation	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Don't have a job	1 (33.3%)	1 (33.3%)	1 (33.3%)	3
Fisherman	32 (60.4%)	14 (26.4%)	7 (13.2%)	53
Laborer	15 (88.2%)	1 (5.9%)	1 (5.9%)	17
Businessman	4 (80%)	0	1 (20%)	5
Private	1 (33.3%)	0	2 (66.7%)	3
civil servants/ TNI/ POLRI	0	1 (33.3%)	0	1
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 3, the majority of the respondent's parents' occupation as fishermen with a percentage of 60.4% independent care.

Table 4. Relationship of Knowledge to Dental and Oral Self-Care

Knowledge	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Good	32 (71.1%)	6 (13.3%)	7 (15.5%)	45
Enough	10 (41.7%)	9 (37.5%)	5 (20.8)	24
Not enough	11 (84.6%)	2 (15.4%)	0	13
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 4, respondents who have good category knowledge with good self-care are 71.1%.

Table 5. Relationship between Behavior and Dental Self-Care

Behavior	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Good	32 (76.2%)	4 (9.5%)	6 (14.3%)	42
Enough	5 (35.7%)	6 (42.9%)	3 (21.4%)	14
Not enough	16 (61.6%)	7 (26.9%)	3 (11.5%)	26
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 5 the majority of respondents have good category behavior with good self-care of 76.2%.

Table 6. Relationship of Attitudes to Dental and Oral Self-Care

Attitude	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Good	37 (72.5%)	6 (11.8%)	7 (13.7%)	51
Enough	7 (36.8%)	7 (36.8%)	5 (26.3%)	19
Not enough	8 (66.6%)	4 (33.3%)	0	12
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 6, most respondents have a good category attitude with good self-care, namely 72.5%.

Table 7. Relationship of social history to dental and oral self-care

Social History	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Good	29 (78.4%)	7 (18.9%)	1 (2.7%)	37
Enough	12 (70.6%)	3 (17.6%)	2 (11.8%)	17
Not enough	12 (42.9%)	7 (25%)	9 (32.1%)	28
Total	53 (64.6%)	17 (20.7%)	12 (14.7%)	82

Based on table 7, most respondents had a good category of social history with good self-care of 78.4%.

Table 8. Relationship of history of toothache to dental and oral self-care

Toothache History	Dental and Oral Self Care			Total
	Good	Enough	Not enough	
Once	44 (64.7%)	15 (22.1%)	9 (13.2%)	68
Never	9 (64.3%)	2 (14.3%)	3 (21.4%)	14

Based on table 8, most respondents had experienced toothache and had good self-care, namely 64.7%.

Table 9. Statistical Test Results Using Chi-square

Variable	<i>p-values</i>	Conclusion
Age	0.037	There is a Relationship
Gender	0.025	There is a Relationship
Parents' occupation	0.049	There is a Relationship
Knowledge	0.037	There is a Relationship
Behavior	0.018	There is a Relationship
Attitude	0.046	There is a Relationship
Sosial History	0.010	There is a Relationship
Toothache History	0.015	There is a Relationship

Based on table 9, the results of the chi-square test obtained a p-value of each variable <0.05 so that it can be concluded that there is a relationship between age, gender, parents' occupation, knowledge, behavior, attitudes, social history, and history of toothache to treatment independent teeth and mouth in adolescents.

DISCUSSION

a. Relationship of Age to Dental and Oral Self-Care in Adolescents

The results showed that the majority of respondents were aged 15-17 years, namely 42 respondents. Respondents came from class X, XI, and XII where the majority of respondents came from class XII, namely 39 respondents. The results of this study found that respondents aged 18-20 years and had good dental and oral self-care were 77.5%, while for respondents aged 15-17 years the results were 52.4%. Age is the level of maturity of a person where the more age is enough, the way one thinks will be more mature and the strength in work will increase. This study shows that the majority of respondents are aged 15-17 years where this age is classified as a teenager. Adolescence is also called a period of development because at that time a person experiences intellectual, social, emotional and cognitive development. Adolescence is a critical

age where at that age children have a high level of curiosity. As you get older, the power of one's mindset and understanding will increase so that the knowledge gained will be better. This will affect a person's behavior in performing dental and oral care.¹⁵

b. Relationship of Gender on Dental and Oral Self-Care in Adolescents

Respondents in this study were students of Kampung Laut 1 Senior High School totaling 82 respondents who were included in the inclusion criteria, namely 40 men and 42 women so that there were more female research respondents than men. Gender is a concept used to identify differences between men and women from a biological, genetic, and physical perspective. Characteristics based on gender in this study showed that the percentage of female respondents who had good dental and oral self-care was 78.6%, where the results of this study were in line with research by Yuniarly, et al (2019) which stated that compared to students of other sex boys, girls students pay more attention to the cleanliness of the oral cavity. This could be because women tend to be more concerned about their appearance, including the condition of their teeth and mouth, while men tend not to care about their appearance.¹⁶ The oral hygiene status of girls is better than that of boys. This is due to the nature of girls who are more easily directed and more skilled in performing dental and oral care, such as brushing their teeth. The behavior of boys in maintaining oral hygiene tends to be lacking because boys tend to be lazy to do dental and oral care.¹⁷

c. The Relationship between Parents' Occupation and Dental and Oral Self-Care in Adolescents

The results of the research based on the parents' occupation showed that most of the respondents' parents worked as fishermen by 53 respondents (64.6%). Work is a necessity that a person must fulfill to support his life and family life, but work is usually a time-consuming activity so he does not have free time to get information about dental and oral health problems. The results of this study indicate that knowledge of dental and oral health is quite good even though most of the student's parents' work. This is in line with research conducted by Liza and Diba (2019) which said that parents play an important role in the growth and development of children because parents are a place for children to learn so that good parental knowledge will affect the dental and oral health of their children. If parents provide examples of good behavior, children will also follow the behavior of their parents.¹⁸

d. Relationship of Knowledge to Dental and Oral Self-Care in Adolescents

The results of the research conducted by the researcher described the distribution of the characteristics of the respondents based on the level of knowledge of Kampung Laut 1 Senior

High School students. It was found that the respondents had a good level of dental and oral health knowledge with 45 respondents (54.9%). This is in line with previous research conducted by Izzah (2020) which found that 39% of 64 respondents had a good level of knowledge and good self-care, so it can be concluded that there is a significant relationship.¹⁹

Respondents who had a good level of knowledge with good self-care were 71.1%, while respondents who had less knowledge with good self-care had a higher percentage of 84.6%. This is caused by several factors including gender and history of toothache. It is known that 11 students who have less knowledge are mostly female. Girls tend to pay more attention to themselves, especially their appearance, including oral and dental hygiene, so they have better dental and oral self-care behavior than boys.¹⁹ The majority of respondents with less knowledge have experienced toothache where this affects self-care respondent's teeth and mouth. Someone who has had a toothache will have better self-care behavior because they do not want to have complaints about their teeth and mouth.²⁰ Gayatri's research (2017) says that not all respondents who have a high level of knowledge will carry out good dental and oral self-care, and vice versa, respondents who carry out good dental and oral self-care do not necessarily have a high level of dental and oral health knowledge.²¹

The level of students' knowledge regarding dental and oral health maintenance behavior will affect the good or bad condition of the oral cavity. Someone who has a good level of dental and oral health knowledge and applies it in daily behavior, then this will affect the person's dental and oral hygiene.²²

e. Relationship of Behavior to Dental and Oral Self-Care in Adolescents

The results of the research conducted by the researcher described the distribution of the characteristics of the respondents based on the behavior of the students of Kampung Laut 1 Senior High School, it was found that the percentage of respondents who had good behavior and good dental and oral self-care was 76.2%.

This is in line with previous research conducted by Mueller, et al (2022) which stated that 81.8% brushed their teeth twice a day and 78% brushed their teeth for 2 minutes, which means that the respondent's behavior was good. Respondents considered brushing their teeth as a daily routine as a form of maintaining dental hygiene and health care, which means good self-care. It can be concluded that there is a relationship between behavior and self-care of the teeth and mouth, where the better the behavior, the better the self-care of the teeth and mouth will also be.²⁰

f. Relationship of Attitudes Toward Dental and Oral Self-Care in Adolescents

The results of the research conducted by the researcher described the distribution of the characteristics of the respondents based on the attitudes of the students of Kampung Laut 1 Senior High School, it was found that the percentage of respondents who had a good attitude and good self-care for teeth and mouth was 72.5%. This is in line with Arianto's research (2019) which stated that most respondents had good dental and oral maintenance care of 52.7% with a good attitude of 52.3%. A person's attitudes and beliefs about oral hygiene care practices become the basis for someone to carry out an activity related to oral health. This shows the existence of a good attitude that can lead to positive behavior.²²

g. Correlation between social history and dental and oral self-care in adolescents

The results of the research conducted by the researcher described the distribution of the characteristics of the respondents based on social history in Kampung Laut 1 Senior High School students. It was found that the percentage of respondents who had a history of association with the good category and good dental and oral self-care was 78.4%. This is in line with Wanti and Wowor's research (2021) which states that a person's behavior is caused by several factors, one of which is reinforcing factors which include social support and the influence of peer association. This increases extrinsic motivation which can influence behavior in carrying out self-care of teeth and mouth in a person. The higher the motivation to carry out self-care, the better the behavior in carrying out self-care will also be, and vice versa.²³ An action or behavior can also be formed due to the influence of peers or those closest to them, besides that the existing facilities in the field of dental and oral health can also influence the formation of behavior.²⁴ Peers have a role in exchanging and providing information apart from family. Good friendships can help the development of social aspects and peers can also set a good or bad example.²⁵

h. Correlation between History of Toothache and Self-Care of Teeth and Mouth in Adolescents

The results of the research conducted by the researcher described the distribution of the characteristics of the respondents based on the history of toothache in Kampung Laut 1 Senior High School students. It was found that the majority of respondents had experienced toothache but had good dental and oral self-care of 64.7%. This is in line with the research of Darmayanti, et al (2022) which states that there is a relationship between tooth brushing behavior and the incidence of dental caries where if a person has good tooth brushing behavior, the incidence of caries is lower, and vice versa. Caries is a dental disease that is often experienced by the community caused by the habit of consuming cariogenic food and bad tooth brushing behavior. The habit of brushing your teeth in the morning after breakfast and at night before going to bed

greatly influences the incidence of caries.²⁶

The results of research conducted by Mueller (2022) show that 97.1% of respondents perform self-care so that their teeth remain healthy or there is no tooth decay. As many as 35.3% of respondents had experienced toothache and went to the dentist and then they carried out self-care with the aim that they would not have any complaints when visiting the dentist on their next visit.²⁰

Types of self-care actions such as rinsing the mouth using mouthwash and cleaning between the teeth using dental floss are only limited to knowledge and have not been implemented as the respondent's daily self-care. This is caused by several factors, such as limited health facilities making it difficult to find dental floss and mouthwash in the area. The high level of respondents' knowledge is caused by several factors, including information obtained from school, social history between friends, and information from social media.

CONCLUSION

Based on the results of the analysis of the determinants of self-care for adolescents at Kampung Laut 1 Senior High School, the following conclusions are obtained:

1. The proportion of self-care actions carried out by adolescents at Kampung Laut 1 Senior High School was 76.2% with the types of self-care actions that were known to the respondents, including brushing their teeth (76.8%), rinsing with mouthwash (80.5%), and cleaning between the teeth using dental floss (78%).
2. There is a relationship between knowledge, behavior, attitudes, age, gender, parental occupation, social history, and history of toothache on dental and oral self-care in adolescents.

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